Regional Transportation Safety Information Management System (RTSIMS)

Project Overview

The Regional Transportation Safety Information Management System will be expected to perform the following functions:

1. Serve as the Crash Data Source

The RTSIMS will contain a current archive of crash data pertinent to the MAG region (currently consists of all entities within Maricopa County plus Apache Junction). The source of crash data will be the ALISS crash database maintained by Arizona DOT. The RTSIMS data archive will also contain other non-ALISS transportation data that are pertinent to the MAG region. This project is based on the assumption that the current practice of ADOT providing MAG with annual updates of the ALISS crash database (for the MAG region) will continue. The system will be able to integrate new crash data into the crash data archive in an efficient manner and make the data available for use at MAG.

2 Provide An Efficient User Interface for Analysis of Crashes

The RTSIMS will have an intuitive and user-friendly interface that will provide users with the ability to query all or part of the crash database and perform various crash analyses.

The RTSIMS will have built-in ability to generate statistics and the corresponding graphics (tables, bar/pie charts and trend lines) that would be required for inclusion in MAG reports or for display at the MAG website. The generation of such graphics may be based on standard office software such as Microsoft Excel. In addition, RTSIMS will also have the ability to carry out the following:

- Specific corridor safety analyses
- Forecast safety consequences of transportation planning alternatives

The RTSIMS project will be carried out in three phases. Brief descriptions of the three phases are provided below.

Phase I: Development of a Table of Common Definitions (TCD).

Phase II: Develop a software application that would support: analysis of historical crash data for the generation of custom reports and an annual report on road safety in the MAG region; develop models (based on current practice) to forecast future crashes/safety outcomes of transportation planning alternatives

Phase III: Develop and incorporate within RTSIMS, the ability to perform spatial analysis utilizing geocoded crash data in a GIS environment. Such analyses would help identify road safety issues based on past data and also in evaluating the effectiveness of road safety improvements.

RTSIMS Phase-I Table of Common Definitions (TCD) for Crash Data

Goal

The goal of RTSIMS Phase-I project is to develop a Table of Common Definitions for all the crash data fields currently available in the ALISS database.

Tasks:

1. **Kickoff meeting**

   The project kickoff meeting will be held at MAG and will be attended by the consultants key project staff. In preparation for the kickoff meeting the consultant will prepare: (a) a brief plan for execution of each project task; and (b) the planned schedule. The project schedule will be coordinated such that the MAG Transportation Safety Committee will be briefed on three occasions: at project initiation, at mid-point and at project conclusion. At the kickoff meeting the project approach and schedule will be further reviewed, refined and a revised project approach and schedule will be submitted to MAG within one-week.

2. **Identify each of the variables/fields of safety data coded in the ADOT ALISS database.**

   This task will produce a comprehensive list of all the data fields contained in the ALISS Microsoft Access database with their current ADOT definitions. For each variable the range of values used, default values and reasons for not coding will be identified. Data fields associated with any ambiguity will be clearly identified with illustrative examples. Much of the information required for this task is documented in the ADOT Arizona Traffic Accident Report – Instruction Manual & Glossary – December 2000. The consultant will utilize this manual (or a more recent version of it), and also consult with relevant ADOT staff to address any areas that need further clarification.

Deliverable: Technical Memorandum No.1 that will document data fields and their range of values used in the ALISS database

3. **Compare data fields in the ALISS database with similar fields in MMUCC (Model Minimum Uniform Crash Criteria Guideline), and identify similarities and differences.**

   MMUCC represents a voluntary and collaboration effort to generate uniform crash data that are accurate, reliable and credible for data-driven highway safety decision making within an city or town, MPO, state, between states and at the national level. It recommends voluntary implementation of a "minimum set" of standardized data elements to promote comparability of data within the highway safety community.

   MAG and ADOT have both carried out this comparison. The results of these efforts will be made available for this task. The task would consist of synthesizing this information, together with any insights from similar comparisons in other states, to compare data fields and the associated range of values produced in Task 1 against similar data fields in MMUCC. The findings of this task will be documented in a technical memorandum.

   Deliverable: Technical Memorandum No. 2 documenting results of the comparison of data fields in ALISS and MMUCC

4. **Identify crash data definitions used by local agencies that may differ from ADOT's ALISS definitions.**

   The Arizona Department of Public Safety, Maricopa County Sheriff's Office and local police departments in the region are responsible for generating Police Accident Reports (PARs) for crashes that occur in their jurisdictions, which result in injuries or exceed $1000 in property damage. Officers also report crashes outside their own jurisdictions when they encounter such crashes. The PARs are submitted by each agency to ADOT for entry into ALISS. The reporting of crashes on the PAR form is

carried out by filling blanks on the form based on the definitions associated with each field. These definitions are described in the Arizona Traffic Accident Report – Instruction Manual & Glossary, referred to in Task 2. However, some local agencies differ from ADOT in how certain crashes – such as intersection related crashed are defined in crash analysis. This task will clearly identify all the data fields that carry local agency definitions that differ from ADOT ALISS, the corresponding value ranges and the agency names. Completion of this task would require consultation with appropriate staff at every MAG member agency.

Deliverable: Technical Memorandum No. 3 will list by agency name all the crash data fields that differ from the ALISS definitions and the corresponding range of values

5. **Generate consensus on the definitions of crash data fields and develop a Table of Common Definitions (TCD) applicable for all MAG member agencies. If consensus is not possible for any particular crash data field, clearly identify the different definitions used and by which agency.**

   This task would involve interaction with all key regional transportation safety stakeholders, with the objective of possibly generating consensus on data definitions and how data needs to be coded to facilitate its use for future crash analysis. Stakeholder participants in this task would include: FHWA, ADOT, DPS, local police, traffic engineers, safety analysts, safety researchers and other interested stakeholders. Execution of the task will involve meetings held at MAG, on-line document reviews and discussions by the stakeholders (facilitated by the consultant), and also consultation with peer organizations. While an attempt will be made to reach consensus on all data fields, it is possible that consensus may not be possible for a few data fields. The key reasons or differences in philosophies that prevent reaching consensus will be documented. If

appropriate, suggestions will be included for future steps that may help resolve the most challenging of issues**.**

Deliverable: Technical Memorandum No.4: Table of Common Definitions for all crash data elements. Documentation will also include how the table was developed, which agencies were consulted, and any unresolved differences.

Committee Briefings:

MAG Transportation Safety Committee

January 16, 2007 -- a 10 min project overview

March 20,2007 – project progress

May 15, 2007 – draft final report

March 2007 - Arizona Traffic Records Coordinating Committee